

REMARKS

Claims 1-11 are pending in this application. Claims 1-11 stand rejected. By this Amendment, claims 1, 2, and 10 have been amended. The amendments made to the claims do not alter the scope of these claims, nor have these amendments been made to define over the prior art. Rather, the amendments to the claims have been made to improve the form thereof. In light of the amendments and remarks set forth below, Applicants respectfully submit that each of the pending claims is in immediate condition for allowance.

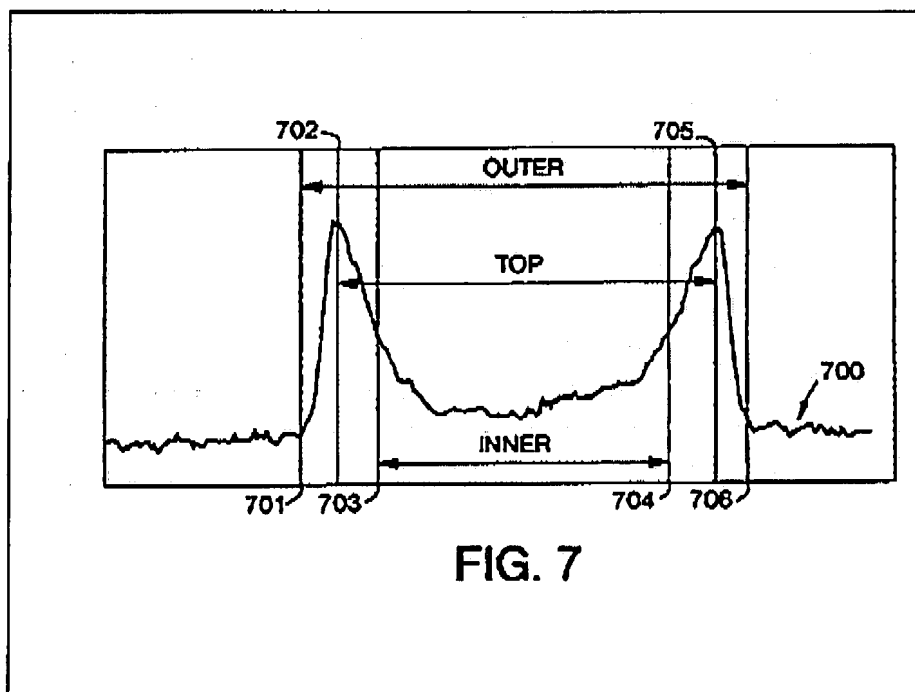
Claims 1-11 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,969,273 ("Archie"). Applicants respectfully traverse this rejection.

The primary point of the present invention is to easily and quickly detect the shape of an upward uneven portion at a pattern start-edge portion or the shape of a downward uneven portion at a pattern end-edge portion when detecting the pattern formed on a sample, in a direction in which scanning with a charged particle beam is conducted.

The Office Action asserts that "Archie also teaches comparing the absolute value of the slope (comparison means) in regions on either side the peak locations of the waveform to determine the "humpwidth" of the resist line (Column 6, line 9-3) relative to the baseline of the waveform." (See, Office Action at 2.)

Needless to say, it is also possible to measure the "width" of a "hump (convex)" portion by using the invention of the present application. However, an object of the present invention is not to determine the "humpwidth" as in the Archie patent but to determine whether which side of an uneven portion formed on a sample is a "hump (convex)" or "not (concave)."

The present invention will be described referring to Fig. 7 of Archie as an example.



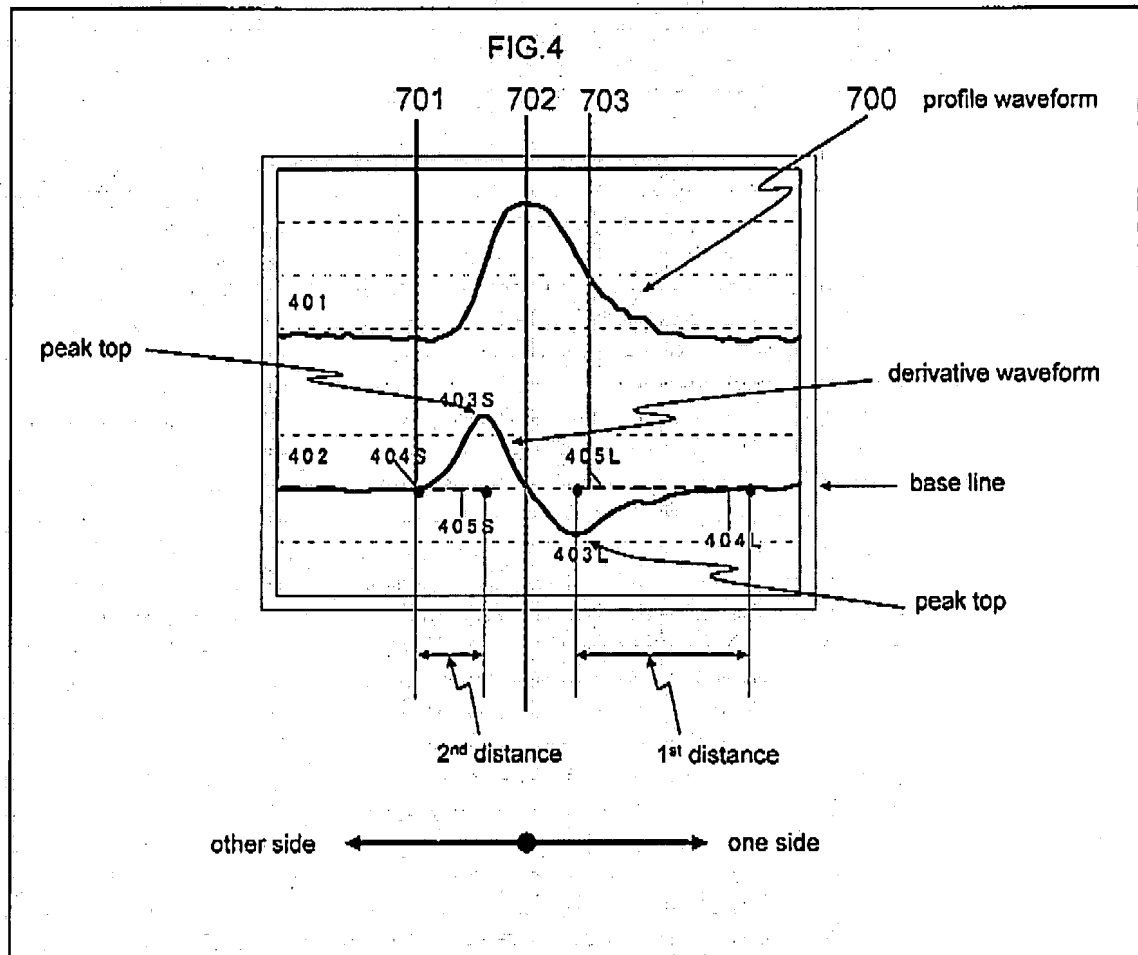
In light of Fig. 7, the present invention measures:

- the distance between a peak of a derivative waveform (not shown) of the profile waveform, the peak existing between the points 701 and 702 of the profile waveform and not designated by any reference character, and a position where the derivative waveform converges, the position probably existing near the point 701; that is. the above distance is "a second distance;" and

- the distance between a peak of the derivative waveform of the profile waveform, the peak probably existing near the point 703, and a position where the derivative waveform converges, the point located

toward the inner region with respect to the point 703 and not designated by any reference character; that is, the above distance is "a first distance."

The following shows Fig. 4 of the present application in the light of a derivative waveform 700 and the points 701-703 of Fig. 7 of Archie.



In Archie, there is no explanation about such feature of the present claims, the measurement of the first distance and the second distance.

Further, Archie does not suggest comparing the first distance with the second distance.

Furthermore, when these two distances are compared, the present invention does not consider the difference between both sides of a pattern but compares “the first distance” with “the second distance” about “one side of the convex (or concave) pattern.”

In contrast, in order to measure the width of a pattern; that is, “humpwidth,” the Archie patent explains the measurement of the distance between the points located that correspond to both sides of the pattern; for example,

(1) the distance between the point 701 and the point 706; that is, the outer region of the pattern portion of the derivative waveform, 700;

(2) the distance between the point 702 and the point 706; that is, the top region of the pattern portion of the derivative waveform, 700; and

(3) the distance between the point 703 and the point 704; that is, the inner region of the pattern portion of the derivative waveform 700.

The present claims have a feature that does not exist in the Archie; that is, the present invention compares a first distance (or a second distance) on the convex (or concave) side of one peak of a pattern portion of a derivative waveform; that is, “one side of the convex (or concave) pattern” with a second distance (or a first distance) on a concave (or convex) side thereof.

Also, “a position where the derivative waveform converges” on the convex side (the point 494 in the above Fig. 4) or “a peak top of a second side of the derivative waveform” on the concave side (the point 403S in the above Fig. 4) are not considered

at all among the points 701 to 706 shown in Fig. 7 of the Archie patent. For this reason too, the present invention, having the feature of obtaining a first distance and a second distance or determining a convex or a concave based on the comparison between the first distance and the second distance is neither obvious nor anticipated based on Archie.

Archie merely explains an example of forming a profile showing a single "hump." Thus, it is unlikely that Archie recognizes the technical problem as in the present invention, the problem being caused only when scanning is carried out on a plurality of convex patterns (it is difficult to determine which is a convex or a concave since they look alike), and therefore the present claims are non-obviousness.

Applicants have responded to all of the rejections and objections recited in the Office Action. Reconsideration and a Notice of Allowance for all of the pending claims are therefore respectfully requested.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue.

If the Examiner believes an interview would be of assistance, the Examiner is welcome to contact the undersigned at the number listed below.

Dated: May 25, 2007

Respectfully submitted,

By 

Ian R. Blum

Registration No.: 42,336

Mark J. Thronson

Registration No.: 33,082

DICKSTEIN SHAPIRO LLP

1177 Avenue of the Americas

New York, New York 10036-2714

(212) 277-6500

Attorneys for Applicants

IRB/mgs